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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,145	09/10/2003	Marie Ann McMasters	GE126465	3043
29827	7590	01/24/2005	EXAMINER	
FRANCIS L. CONTE, ESQ. 6 PURITAN AVENUE SWAMPSCOTT, MA 01907			KIM, TAE JUN	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/659,145	<b>Applicant(s)</b> MCMASTERS, MARIE ANN	
	<b>Examiner</b> Ted Kim	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13, 15, 16 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 7, 10, 14 and 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/10/2003</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the drawings must show “said lip having a distal end at said slot outlet being spaced from said coating aft of said slot (B) less than about said coating nominal thickness (A)” must be shown – see also paragraph [0031] of the specification. The drawings show the opposite relationship of B to A from that claimed and disclosed. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

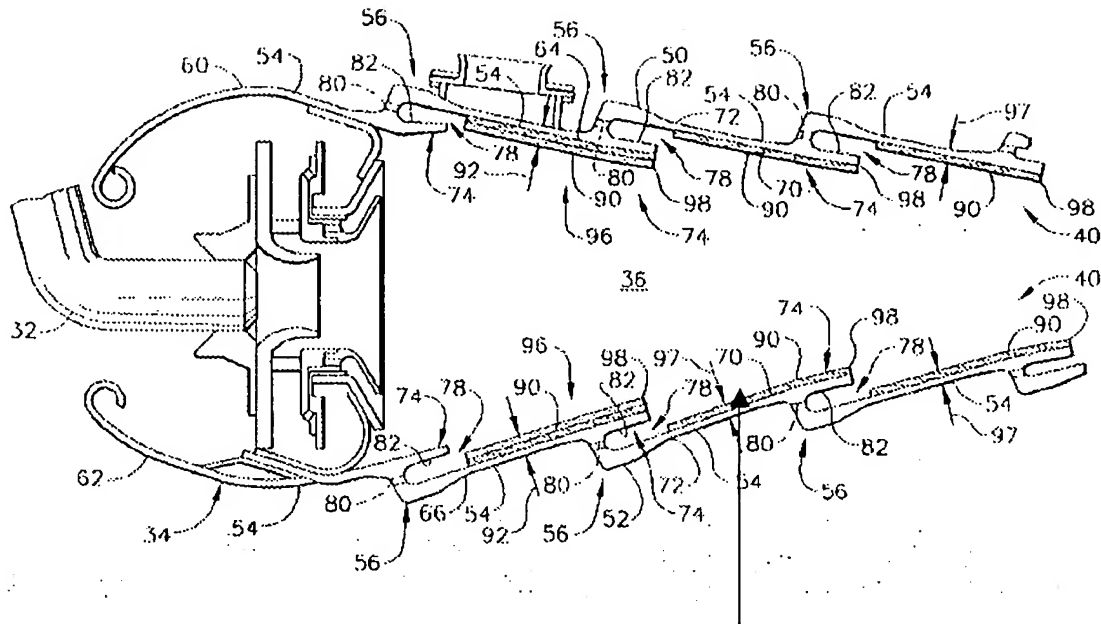
*Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by McCaffrey et al (6,438,958). McCaffrey et al teach a combustor liner comprising: a plurality of forward 64 and aft 66 panels 54 joined together at a cooling nugget 56 including an integral bridge having a lip 74 extending aft from said forward panel and spaced from said aft panel to define a slot 78 terminating in an outlet; a thermal barrier coating 96 with thickness  $T_1$  covering inboard surfaces of said panels and lip with a nominal thickness  $T_1$ ; and said lip having a distal end at said slot outlet being spaced from said coating aft of said slot less than about said coating nominal thickness; wherein said slot has a height at said slot outlet, and said coating is as thick as about half said slot height (the range for the thickness  $T_1$  can be varied to about this ratio); wherein said lip has a thickness at said slot outlet, and said coating is thicker than said lip thickness; said cooling nugget includes a row of aperture inlets 80 disposed in flow communication with said slot for channeling cooling air therethrough; and said nugget inlets have a smaller collective flow area relative to said slot outlet at said coating.



increase illustrated TBC thickness  
to be same as the first panel

McCaffrey et al teach that layer 90, 96 can be applied to all the panels 54 with the same thickness  $T_1$  and when that is met, the said lip having a distal end at said slot outlet is spaced from said coating aft of said slot less than about said coating nominal thickness

"A layer 90 of thermal barrier material is applied on combustor liner surface 70 and extends from overhang portion 74 to overhang portion 74 of each step 54. Thermal barrier material further insulates combustor liner surface 70 from high temperature combustion gases. In an exemplary embodiment, thermal barrier material is commercially available from Englehart Industries, Wilmington Mass. Thermal barrier material is applied to combustor liner surface 70 over each combustor panel 54 disposed between combustor inlet 34 and combustor outlet turbine nozzle 38. Thermal barrier material is applied such that layer 90 has a thickness  $T_1$  greater than 0.01 inches extending over at least a portion 96 of combustor liner surface 70. In one embodiment, portion 96

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includes only outer liner first panel 64 and inner liner first panel 66 and any remaining panels 54 have a layer 90 of thermal barrier material with a thickness  $T_2$  of 0.01 inches or less. In another embodiment, portion 96 includes outer and inner liner first panels 64 and 66, and at least one other outer liner panel 54 and inner liner panel 54, and any remaining panels 54 have thermal barrier material with thickness  $T_2$  is 0.01 inches or less. In a further embodiment, combustor liner surface 70 thermal barrier material is applied such that *layer 90 extends over all combustor panels 54* between combustor inlet 34 and combustor outlet turbine nozzle 38 and has thickness  $T_1$  greater than 0.01 inches.

Thickness  $T_1$  is measured from combustor liner surface 70 to a top surface 98 of layer 90. In one embodiment, layer 90 extends over portion 96 and has thickness  $T_1$  approximately twice thickness  $T_2$  of thermal barrier material extending over panels 54 not in portion 96. In another embodiment, thermal barrier material thickness  $T_1$  is between 0.20 and 0.35 inches and thickness  $T_2$  is 0.01 inches or less. In a further embodiment, thermal barrier material thickness  $T_1$  is approximately 0.20 inches. (col. 3, lines 19-53)"

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 8, 9, 11-13, 15, 16, are rejected under 35 U.S.C. 103(a) as being unpatentable over McCaffrey et al (6,438,958). McCaffrey et al teach the claimed invention and illustrate (after modification as taught for the alternative embodiment) the claimed range for the spacing of the lip from the coating aft of the slot of less than the

nominal coating thickness. It would have been obvious to one of ordinary skill in the art to use this range as one that would be schematically taught to one of ordinary skill in the art after modification to comply with the alternative embodiment where the thickness for the TBC on the second panel is the same as on the first panel. As for the claimed range of height to length ratio of the slot, this also appears to be illustrated and it would have been obvious to employ as a conventional range used in the art and/or as an obvious matter of finding the workable ranges in the art.

6. Claims 8, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCaffrey et al as applied above, and further in view of Kenworthy (3,845,620).

McCaffrey et al teach a slot cooled liner with axial inlet holes but does not teach transverse inlet openings. Kenworthy teaches a slot cooled liner with transverse inlet openings 18b (Fig. 1b) is old and well known in the art and equivalent to one with axial inlet openings 18 (Fig. 1). It would have been obvious to one of ordinary skill in the art to employ transverse inlet openings as an equivalent configuration used in the art.

#### *Allowable Subject Matter*

7. Claims 7, 10, 14, 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


#### *Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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